

PULL STRIP ACTUATED PUSHER FOR MERCHANDISE DISPLAYS

Background of the Invention

- Many merchandise displays make use of pusher elements that are positioned behind a row of product items, for the purpose of maintaining the products in an up-front position on the display shelving. This provides a neater looking display, as well as making the merchandise more conveniently accessible to the prospective customer.
- Quite commonly, pusher elements are in the form of pusher sleds, guided for front to back movement on a suitable base and provided with coiled springs for constantly urging the pusher sleds in a forward direction. Such spring-driven pusher sleds can work satisfactorily when the spring is properly sized for the particular merchandise to be displayed, and the particular display is always stocked with the same merchandise or merchandise of very similar size and weight. However, if different merchandise is displayed, of a materially different weight, the spring-actuated operation of the pusher sled may be less than optimum, being unnecessarily powerful for lighter merchandise or inadequate for heavier merchandise.
- Where the nature of the merchandise to be displayed can be expected to be variable, some merchandisers avoid the use of springs and instead utilize a

manually operated pull strip for positioning the pusher sled. For these manually operated displays, a store clerk checks the displays periodically and, when appropriate, pulls outward on a pull strip to advance the pusher sled toward the front to reposition the merchandise. The pull strip is then returned to a normal, 5 retracted position, where it remains until next operated by a store clerk.

Summary of the Invention

The present invention is directed to a novel and improved pull strip actuated pusher assembly of the type described above which is particularly advantageous 10 in that its desired functions are achieved by means of a design which is highly economical to manufacture and install, and is thus attractive for use by mass merchandisers. As will be understood, mass merchandisers utilize product display apparatus in huge quantities, and pricing is a highly significant aspect of product selection in terms of display equipment. The pusher sled arrangement according 15 to the invention is capable of manufacture and assembly on a highly economical basis without comprising any of its functional features.

Pursuant to the invention, a pull strip actuated pusher arrangement is provided in which a pusher sled is mounted for guided movement on an elongated 20 base member. A pull strip element is supported and guided by the base member and has a projection at its back end which is engageable with a rearwardly facing surface of the pusher sled enabling the pusher sled to be drawn forwardly by

actuation of the pull strip. To advantage, the pull strip is vertically confined on the base member only in a limited area adjacent the front end of the base member. This greatly simplifies the molding of the base member, reducing its cost of manufacture. Portions of the pull strip behind the limited vertical confinement

5 means are vertically unconfined other than by the presence of the overlying pusher sled, which may be at various positions along the pull strip. Initial assembly of the pull strip to the base member involves simply sliding the pull strip into a groove in the base member, underneath tabs provided adjacent the front end of the base member for vertical confinement. Pursuant to the invention, the

10 pusher sled is thereafter installed over the pull strip, by a snap-on assembly procedure such that the three part assembly, the base member, the pusher sled, and the pull strip are all locked in assembled relation.

In a preferred embodiment of the invention, one or both of the base

15 member or pusher sled is provided with angled edge surfaces enabling the pusher sled to be assembled with the base member by applying downward force for a snap-on engagement. Once engaged, the parts are permanently locked together.

In the device of the invention, means are provided to define a positive limit

20 stop for forward movement of the pusher sled. This forward limit position is so related to the positioning of the vertical confinement of the pull strip that, when the pull strip and the pusher sled are in their forwardmost positions, the pull strip

- remains engaged by its vertical confinement. Accordingly, when returning the pull strip to a fully retracted position from any forward position, there is never a problem of having to realign the pull strip with its confinement at any position of the pull strip, in order to return it to a fully retracted position. Moreover, the pull strip is
- 5 automatically prevented from being pulled entirely out of its working position in the base member. Advantageously, the pusher member is similarly provided with a rearward limit stop, preferably by providing a rearward limit stop for the pull strip, which in turn would limit the rearward motion of the pusher sled.
- 10 In an alternative embodiment of the invention, a return spring is advantageously attached to the pull strip, such that the pull strip is always automatically returned to its fully retracted position and can never be left partially projecting by a careless store person.
- 15 In another alternative embodiment, the pull strip can be provided with a second abutment tab, spaced forwardly of the first, and positioned such that, when the pusher member is snapped over the base member, it is positioned between the two abutment tabs. This enables the pusher sled to be returned to a retracted position along with the pull strip after advancing the merchandise. For certain
- 20 types of packages, which are reliably self-standing, it is not necessary to support the packages with the pusher sled after they have been moved forwardly, and it may be preferred to retract the sled by means of the pull strip element.

For a more complete understanding of the above and other features and advantages of the invention, reference should be made to the following detailed description of a preferred embodiment of the invention, and to the accompanying
5 drawings.

Description of the Drawings

Fig. 1 is a top plan view of a pull strip actuated pusher assembly according to the invention.

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Fig. 2 is an enlarged, fragmentary top plan view of the device of Fig. 1, showing details of construction of the rear portion thereof.

15 Fig. 3 is an enlarged, fragmentary top plan view of the device of Fig. 1, showing details of construction of the front portion thereof.

Fig. 4 is an enlarged, fragmentary cross sectional view as taken generally on line 4-4 of Fig. 1.

20 Fig. 5 is an enlarged, fragmentary cross sectional view as taken generally on line 5-5 of Fig. 2.

Fig. 6 is an enlarged, fragmentary cross sectional view, similar to Fig. 5, illustrating a second embodiment of the invention employing a spring element to return the pull strip.

5 Fig. 7 is an enlarged, fragmentary cross sectional view as taken generally on line 7-7 of Fig. 6.

Description of Preferred Embodiment

Referring now to the drawing, the reference numeral 10 designates
10 generally a display shelf such as forming part of a typical gondola structure used in
many merchandising outlets for the display of merchandise. In the arrangement
illustrated in Fig. 1, guide rails 11, 12 are mounted at the front and back edge
areas respectively of the shelf 10. The guide rails are of a conventional type, in
this case provided with a pressure sensitive adhesive along their bottom surfaces
15 13 for securement to the upper surface of the shelf 10. The guide rails 11, 12
have upper portions 14, 15 formed with somewhat of a T-shaped cross section
(Fig. 5).

A display device according to the invention includes a base member 16
20 having elements 17, 18 at its front and back ends respectively adapted for snap-on
attachment to the guide rails 11, 12, generally in the manner reflected in Fig. 5.
The base member 16 is thus firmly attached to the shelf 10, but can be adjusted

laterally along the rails 11, 12 to enable side-to-side positioning on the shelf display.

In the illustrated form of the invention, the base member 16 preferably is
5 injection molding of a plastic material, such as polycarbonate, and is formed with a generally flat upper surface 19 (Fig. 4). Packages 20 of merchandise can be supported directly on the surface 19 of the base member or, where the packages are of substantial width, by separate lateral supports (not shown) spaced laterally outward from the side edges of the base member 16. Typically, shelf dividers (not
10 shown) can be provided on opposite sides of the base member 16, in order to provide lateral confinement for the merchandise packages 20. In the event such dividers are provided, typically they will be attached to the guide rails 11, 12, accommodating lateral adjustability as needed to fit to the product items 20 being displayed. By way of example and not of limitation, divider panels of the type
15 shown in my U.S. Design Application Serial No. 00/000,000, filed June 24, 2003 (Attorney's Docket 0094-131D) may be utilized to advantage.

The base member 16 is formed with longitudinal supports 22, 23 which extend downwardly from the support panel 19, spaced inwardly somewhat from
20 the side edge extremities 24, 25 of that panel, to define edge flanges 26, 27. The edge extremities 24, 25 are parallel and extend generally along the full length of the base member 16, to form guide edges for a pusher sled 28. The pusher sled

28, also preferably injection molded of a suitable structural plastic material, is formed with opposite side guide flanges 29, 30, which include vertically extending side flanges 31, 32 and inwardly extending locking flanges 33, 34.

5 In a preferred embodiment of the invention, the locking flanges 33, 34 are formed with edges 35 which are inclined inwardly and upwardly, as shown particularly in Fig. 4. The arrangement is such that assembly of the pusher sled 28 to the base member 16 can be accomplished by engaging one of the flanges 29, 30 over a respective guide flange 26, 27 of the base member, and then
10 pressing downward on the opposite side of the pusher sled. The slanted edge 35 functions as a cam to spread outwardly the side flange 29 or 30, enabling it to be snapped over the respective guide flange 26 or 27. Thus, the pusher sled 28 can be easily assembled to the base by a vertically downward, snap-in assembly procedure, but then cannot be detached from the base member without the use of
15 tools or other special means. In this respect, as will be more fully described, means are provided for limiting sliding movement of the pusher sled longitudinally along the base member to predetermined front and back limit positions, such that it is not possible to slide the pusher sled off of the base member at either end of the latter.

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To particular advantage, the fit between the side flange portions 31, 32 of the pusher sled, and the edge flanges 26, 27 of the base member 16 is a slight

interference fit, such that the pusher sled has a "snug" sliding fit on the base member. As a result, the pusher sled 28 will tend to remain in whatever position it is moved to on the base member, until intentionally moved to a new position.

5 In the preferred and illustrated form of the invention, the base member 16 is shaped to define a recess 37 extending longitudinally from one end of the base member to the other. The recess 37 is open at the front end of the base member, preferably is closed at the back end, by means such as a vertical abutment stop 38. An elongated pull strip 39 is slideably received in the recess 37 for easy
10 sliding longitudinal movement therein. The pull strip 39 preferably is relatively thin, for example around 0.085 inch, and is formed of a strong flexible material such as nylon. Preferably, the pull strip is formed with laterally extending side flanges 40, 41 (Fig. 4) which give the strip substantially the same overall width as the channel 37 in which it is received for easily sliding movement.

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Advantageously, the base member is formed with a pair of confinement tabs 42, 43 which extend inward from opposite sides of the pull strip recess 37, at a position close to the front end of the base member. The confinement tabs 42, 43 overlie the side flanges 40, 41 of the pull strip and restrain it against vertical
20 movement out of the guide recess. In the preferred form of the invention, the confinement tabs 42, 43 are provided preferably in a single location and extend for a relatively short distance, for example 0.20 inch in the longitudinal direction.

At its front extremity, the pull strip 39 is provided with a vertical tab 44 to facilitate manual engagement from in front of the display. At its back extremity, the pull strip is provided with an upwardly extending abutment element 45 positioned

5 to engage a rearwardly facing surface 46 of the pusher sled, when the latter is mounted on the base member 16.

In a preferred embodiment of the invention, the pull strip 39 is assembled with the base member 16 by being slid in from the forwardmost end of the guide

10 recess 37, sliding the side flanges 40, 41 thereof underneath the confinement tabs 42, 43. Once the leading (in this case back) end of the pull strip is engaged underneath the confinement tabs, the pull strip can be slid to a fully inserted or "retracted" position in the base member, i.e., when the abutment element 45 at the back of the pull strip engages the abutment stop 38 near the back of the base

15 member. The length of the pull strip is such that, when the fully retracted position is reached, a short front end portion 48 of the pull tab is exposed, providing access to the vertical tab 44 while at the same time keeping the pull strip in an out of the way position.

20 Pursuant to the invention, the pull strip 39 is assembled with the base 16 prior to mounting of the pusher sled 28 onto the base member. The last step of the assembly is performed by a vertically downward snap-over assembly

operation. When the pusher sled is thus assembled, it overlies the pull strip 39 and functions, in addition to the confinement tabs 42, 43, to provide vertical confinement of the pull strip.

5 As can be appreciated, in order to form the confinement tabs 42, 43 in a molding process, an opening 49 must be formed in the bottom surface 50 of the pull strip recess 37, to accommodate the necessary mold parts. Having only a single pair of confinement tabs simplifies the molding process and maximizes the strength of the base member. Stops 51, 52 (Fig. 3) located adjacent the forward
10 ends of the respective guide flanges 26, 27, engage the forwardly facing surfaces of the sled flanges 29, 30 to function as a forward limit stop for the pusher sled. Thus, the forward limit position of the pull strip 39 is a function of the forward limit position of the sled 28, since the abutment tab 45 at the back of the pull strip engages with a rearwardly facing surface 46 of the pusher sled. As will be evident
15 in Fig. 3, when the sled (shown in broken lines in Fig. 3) is in its forwardmost limit position, the confinement tabs 42, 43 lie forward of the back edge 46 of the pusher sled and thus at all times retain confining engagement with the pull strip.

In preferred embodiments of the invention, the front and back extremities
20 17, 18 of the base member are formed with laterally extending socket portions opening downwardly, for a snap-in reception over the guide rails 14, 15. However, any of a variety of means may be used for mounting of the base members,

including suspension between front and back guide rails, for example. The particular manner of mounting and utilization of the assembly is not a significant feature of the invention.

- 5 For certain types of package displays, where the contents of the packages are date sensitive, it is always desired that, during restocking of the shelves, newly added packages be placed at the back of the display, so that the older packages are at the front and likely to be selected by a purchaser. In such cases, it is acceptable, and may be preferable, to return the sled to a retracted position after
- 10 each actuation of the pull strip in order to provide open space behind the packages just moved to an upfront position. This can be accomplished in the disclosed system by providing a second abutment tab 45a (Fig. 5) spaced forwardly of the tab 45 such that the two tabs 45, 45a can straddle the pusher sled 28. When the second abutment tab 45a is employed, the pusher sled 28 is assembled to the
- 15 base member by being snapped over the base member at a position between the tabs 45, 45a, such that it is locked together for movement with the pull strip 39.

- 20 In the alternative embodiment, after the pull strip 39 is drawn forwardly to advance the merchandise to an up-front position, the pusher sled 28 is returned to a fully retracted position along with the pull strip 39. For this embodiment of the invention, the pusher sled 28 may be designed for easy sliding movement on the

base member 16, as there is no need to retain the pusher member frictionally in a position behind the merchandise.

In an alternative embodiment of the invention, shown in Figs. 6 and 7 of the drawing, a return spring arrangement is provided for automatically returning the pull strip member to a fully retracted position after use. In the embodiment of Figs. 5 and 7, a base member 60 is constructed substantially in the same manner as the base member 16, for slideable reception of a pull strip member 61 in a central, longitudinally extending recess 62. A pusher sled 63 is slideably engaged with the 10 base member 60 and, as illustrated in Fig. 6, is arranged to be engaged by an upwardly extending tab 64 at the back end of the pull strip member 61.

At the back extremity of the base member 60 a confinement housing 65 is provided, consisting of opposed side walls 66 and a front wall 67. The housing 65 15 receives a self-coiling strip spring 68 of a well known type used in self-actuating displays. The leading end 69 of the strip spring is notched at 70 and is arranged, when twisted, to pass through a narrow slot 71 at the back end of the pull strip 61. The end of the spring is thus attached to the pull strip in the manner indicated in Fig. 7.

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A slot 72 is provided in the front wall 67 of the containment housing 65, through which the strip spring 68 is passed.

As will be understood, when the pull strip 61 is drawn forwardly, to advance the pusher sled 63, the leading end 69 of the spring is pulled along with it, causing the spring to uncoil within its containment housing 65. When the pusher member 5 61 is later released, the spring 68 recoils itself within the housing, causing the pull strip member 61 to be drawn rearwardly to a fully retracted position. The engagement between the pusher sled 63 and the pull strip member 61 may be such that the pusher sled remains in its advanced position. However, if a second tab 64a is positioned at the front of the sled, as may be desired in some 10 circumstances, the sled 63 will return to a retracted position along with the pull strip 61.

The return spring 68 is desired in some installations, in order to assure that a pull strip member 61 can never be left in a projected position by a careless store 15 clerk, for example.

Significant production and cost advantages are realized by providing, in the three part assembly comprising base member, pusher sled, and pull strip, of an arrangement enabling a snap-in assembly of the pusher sled, after assembly of 20 the first two elements. In the illustrated and preferred embodiment, this is realized by first assembling the pull strip together with the base member, and then joining the pusher sled by a vertically downward snap-together assembly in which the

- side flanges 29, 30 of the pusher sled are snapped over the outer edges 24, 25 of the base member. The geometry of the parts is such that the pull strip is at all times engaged by the limited-area confinement tabs, but is freely slideable longitudinally with respect to the base member, with no need for an operator to
- 5 have to assure proper alignment of the pull strip with additional confinement tabs located toward the rear of the base member. This is of particular significance when the pull strip is not fixed to the pusher sled and remains in an advanced position when the pull strip is retracted following a pull-out operation.
- 10 In the principal embodiment of the invention, the pull strip member is designed for a one-way engagement with the pusher sled, whereby the pusher sled is drawn forwardly by pulling on the pull strip element, but is not returned by retraction of the pull strip. In some instances, however, where the displayed merchandise may be time sensitive, it may be preferred to provide for the sled to
- 15 be returned to a retracted position when the pull strip is retracted. This is easily accomplished by providing a second abutment tab on the pull strip member, spaced forwardly of the first, and cooperating with a forwardly facing surface of the pusher sled. The arrangement is such, of course, that the pusher sled can still be assembled with the base member by a vertically downward, snap-on assembly
- 20 motion, by positioning the pusher sled between the spaced apart abutment tabs.

In its simplest form, the product display system of the invention relies upon the store clerk to return the pull strip member to a retracted position after pulling it forward to bring merchandise up to a forward position. However, to avoid any possibility of a careless store clerk not returning a pull strip member to its fully

5 retracted position, with the attendant possibility of injury to a passerby and/or damage to the pull strip member, the system of the present invention provides for the optional use of a return spring, which is positioned in a fixed containment housing at the back of the base member, and is connected to the pull strip member so as always to fully retract the pull strip member when it is released by a

10 store clerk.

It should be understood, of course, that the specific forms of the invention herein illustrated and described are intended to be representative only, as certain changes may be made therein without departing from the clear teachings of the

15 disclosure. Accordingly, reference should be made to the following appended claims in determining the full scope of the invention.